City of Santa Clara
The Center of What's Possible

SANTA CLARA FIRE DEPARTMENT
FIRE PREVENTION & HAZARDOUS MATERIALS DIVISION
1675 Lincoln Street, Santa Clara, CA 95050
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Dedicated Function Fire Alarm – Wood-Frame Construction

PURPOSE:

Construction site fires are a growing threat for the construction industry and communities across the nation. Many of these fires occur outside working hours when there are no people on-site. This means a greater potential for a fire to go undetected, leading to a more significant fire, potential personal injury, and loss beyond the structure of origin.

DESIGN INTENT:

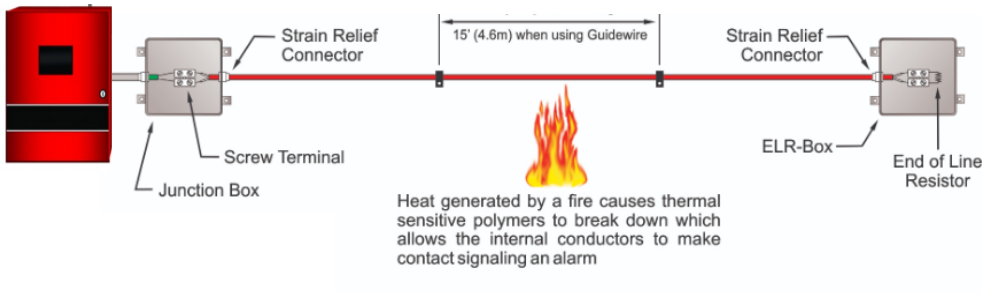
This guideline is intended to provide context for the design and installation of a dedicated function fire alarm system utilizing linear heat detection. The sole purpose of the system is to provide early warning of a fire within a wood-frame construction project to initiate an emergency response faster to protect firefighters and the community better.

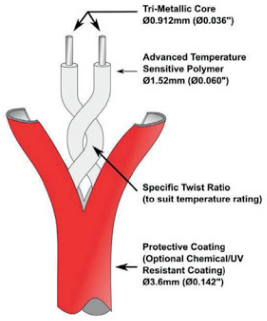
CODE REQUIREMENT:

California Fire Code, Section 3308.5 Fire protection (as amended). All wood frame construction projects exceeding three stories in height, except R-3 occupancies, shall be provided with a listed fire alarm system provided with linear heat detection during construction. The fire alarm system is required to be monitored by a listed monitoring company.

LINEAR HEAT DETECTION:

Linear heat detection uses heat sensing cable to detect excess heat or fire. The heat-sensing cable can detect heat at any point along its length and be installed around the timber frame. As soon as the cable reaches its rated or predefined temperature, an alarm is initiated, and the fire's location is accurately reported back to a fire alarm control panel (FACP).





Revision Date: 05/21/2020

BASIS OF DESIGN GUIDANCE:

The designer of record must work with the owner and general contractor on the overall design and phasing of the system. The following are general design parameters that must be followed on all projects:

1. Protection is only required for the unprotected wood-frame portion of the structure during construction.

2. A listed fire alarm control panel (FACP) is required.

3. A reliable power source for the FACP is required. We recommend working with Silicon Valley Power (SVP) early in the development process.

4. The secondary power supply for the FACP shall have sufficient capacity to operate the fire alarm system for a minimum of 24-hours, and at the end of that period, shall be capable of running the audio/visual device(s) for 15 minutes.

5. A listed cellular dialer is required to transmit a singled to an approved monitoring company. A single transmission method is acceptable. The dialer shall also have a battery backup for a minimum of 24-hours.

6. The FACP and the cellular dialer shall be installed within a NEMA4 enclosure on the exterior of the building.

7. At least one exterior weatherproof notification appliance (e.g., horn/strobe or speaker/strobe) with a minimum 110-cd strobe. The A/V device shall be installed at a height to be visible from the street above the fence line directly above the FACP.

8. A listed linear heat detection cable shall be used. The spacing and routing of the linear heat detection cable shall be designed and installed to ensure prompt activation during the incipient stages of fire. It is not intended to require complete protection following NFPA 72, or the manufacturer's installation spacing instructions.

   > **Example**: A four-story 200,000 square foot wood-framed building with a typical floor plate of 50,000 square feet with a looped corridor system on each floor. Routing heat detection cable in a loop throughout the corridor would be an acceptable level of protection.

   We realize every project is unique, and many projects may not fit precisely into this box. We expect that most projects will likely require a collaborative design approach between the designer, owner, and fire department.

9. At a minimum, each floor or level shall be a separate detection zone. Depending on the size of a building and fire department access, additional zones may be required.

10. The FACP NEMA4 enclosure shall be installed on the street side of the building in an approved location easily accessible by fire department personnel.

11. A sign (minimum 4’ x 4’) stating “CONSTRUCTION FACP," legible from the street, shall be installed above the FACP. Construction FACP shall be in “red” on a white background, as shown below. The sign shall be provided with illumination at night.

12. A man-gate to access the FACP shall be provided in the direct vicinity of the FACP, and that gate shall be equipped with a Knox padlock.

TIMING:

The construction fire alarm system must be approved before the start of combustible framing.

PERMIT REQUIRED:

1. Upload the fire permit application and construction documents (e.g., plans, calculations, and technical data) to our Dropbox Account NEW PERMIT APPLICATION

2. Once the application is received, one of our administrative staff will contact the responsible party for payment.

PLANS:

1. Plans shall include a title sheet, an equipment list, a written sequence of operation or functional matrix, floor plans, and a system riser diagram.

2. Attachments shall include the manufacturer's specification sheets and California State Fire Marshal (CSFM) listing sheets for all equipment and devices.

3. All plans shall be scaled and use the symbols identified in NFPA 170, Standard for Fire Safety and Emergency Symbols. The symbols used on the drawings shall match the legend.

PLAN UPDATES:

Plans will be dynamic documents that will require updates continually as each floor or floors are completed. Updates must be electronically submitted to the fire department whenever significant modification to the systems is made.

DECOMMISSIONING:

Once the building has been fully enclosed and all sheetrock is installed, the system can be decommissioned and removed with the fire department's approval.